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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/501,593	07/13/2004	Ulrich Wennemann	SMB-PT108 (PC03 001MUS)	2775
3624	7590	06/27/2008	EXAMINER	
VOLPE AND KOENIG, P.C. UNITED PLAZA, SUITE 1600 30 SOUTH 17TH STREET PHILADELPHIA, PA 19103			HUSON, MONICA ANNE	
			ART UNIT	PAPER NUMBER
			1791	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/501,593	Applicant(s) WENNEMANN, ULRICH	
	Examiner Monica A. Huson	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 June 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 9-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 9-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This office action is in response to the RCE filed 2 June 2008.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 6, and 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kramer (U.S. Patent 5,482,732), in view of Saitoh et al. (U.S. Patent 4,784,812), further in view of Sicilia et al. (U.S. Patent 6,322,738). Regarding Claim 1, Kramer shows that it is known to carry out a method of producing a ceramic part formed as a dental article (Abstract), comprising shaping a ceramic molding material which contains a ceramic powder and solidifying this into a green body preform to form a first component (Column 10, lines 45-48, 65-66), and after forming the green body preform, forming at least one other ceramic molding material as a second component on the previously produced green body preform to form a multicomponent green body preform (Column 10, lines 48-51, 66-67), the molding materials differing from each other (Column 10, lines 45-51), and subjecting the multicomponent green body preform to sintering to form the final ceramic part (Column 3, lines 33-44), wherein one of the powders is transparent or translucent and the other component (powder) is less transparent than the first component (powder) (Column 3, lines 39-44; Column 4, lines 27-45; Column 10, lines 45-56). Kramer does not show a powder injection molding process. Saitoh et al., hereafter "Saitoh," show that it is known to carry out an injection

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molding method comprising injecting various ceramic powders and binders under heat and pressure into a cavity to form a binder-less ceramic article (Abstract; Column 1, lines 43-68; Column 3, lines 45-61). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Saitoh's ceramic injection molding process to form Kramer's stratified article because injection molding yields an article having no cracks or voids with a good appearance (see Saitoh, Column 1, lines 49-54, 64-65). Kramer does not show carrying out the process in two different cavities. Sicilia et al., hereafter "Sicilia," show that it is known to carry out a method of sequential injection molding of ceramics, wherein a preform is formed in a first cavity, and then in a second cavity, a second component is produced (Abstract; Column 1, lines 8-13). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Sicilia's multiple cavity approach during Kramer's molding process in order for each cavity to remain true to its particular structure and not need to be a one-size-fits-all configuration.

Regarding Claims 6 and 9, Kramer shows the process as claimed as discussed in the rejection of Claim 1 above, including showing that the first layer coats or partially coats the previous layer (Column 10, lines 65-67; Column 11, lines 1-2), but he does not show an injection molding process. Saitoh shows that it is known to carry out a method of injection molding a molding material comprising a ceramic powder and a binder into a cavity of a given shape (Column 3, lines 55-59; it is noted that it is implicit that the shape of the cavity will be varied based upon the desired configuration of the final article). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Saitoh's ceramic injection molding process to form Kramer's stratified article because injection molding yields an article having no cracks or voids with a good appearance (see Saitoh, Column 1, lines 49-54, 64-65).

Regarding Claims 10-11, Kramer shows the process as claimed as discussed in the rejection of Claim 1 above, including a method wherein the carrier is formed of metal or ceramic material (Column 2, lines 40-43), meeting applicant's claim.

Regarding Claim 12, Kramer does not explicitly teach that any over mold shrinks flush to the carrier profile. One of ordinary skill in the art, however, would have found

such a design consideration to be obvious in view of the intended use as a dental artifice where smoothness is critical to comfort and function.

Claims 2 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kramer in view of Saitoh and Sicilia as applied to claims 1, 6 and 9 above, and further in view of Daniels (U.S. Patent 3,705,025).

Kramer/Saitoh teaches the method of claims 1, 6 and 9, as discussed above.

Kramer/Saitoh does not teach sintering at low pressure relative to temperature for pore-free development of the part, as required by claim 2. Kramer/Saitoh further does not teach a grain size $< 50 \mu\text{m}$, as required by claim 5.

Daniels teaches a grain size smaller than 10 microns for a composition containing a ceramic material. See line 68-75 in column 4. Daniels further teaches a low-pressure stage of a pore-free sintering process prior to the application of maximum temperature, wherein volatile impurities are allowed to escape before densification. See lines 60-73 in column 5.

Kramer/Saitoh and Daniels are combinable because they are concerned with a similar technical field, namely, dense ceramic structures. One of ordinary skill in the art at the time of the invention would have found it obvious to include the grain size and aspiration step taught by Daniels in the prosthesis fabrication method of Kramer/Saitoh. The motivation to do so would have been to produce a wear-resistant object. See lines 30-35 in column 2 of Daniels.

Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kramer in view of Saitoh and Sicilia as applied to claims 1, 6 and 9 above, and further in view of Hofmann et al (U.S. Patent 5,916,498).

Kramer/Saitoh teaches the method of claims 1, 6 and 9, as discussed above.

Kramer/Saitoh does not teach the melt temperatures of the ceramic components differing by less than 150°C , as required by claim 3, or the coefficients of thermal expansion differing by less than 15%, as required by claim 4.

Hoffman et al, hereinafter "Hoffman", teaches a ceramic core with a ceramic veneer having melting points less than 50° C apart. See the abstract. Hoffman further teaches that the coefficients of expansion are substantially equal to minimize internal stresses. See lines 17-25 in column 11.

Kramer/Saitoh and Hoffman are combinable because they are concerned with a similar technical field, namely, dental restorations. One of ordinary skill in the art at the time of the invention would have found it obvious to include the compatibility requirements as taught by Hoffman in the prosthesis fabrication method of Kramer/Saitoh. The motivation to do so would have been to achieve optimum processing conditions for strength. See lines 65-68 in column 4 of Hoffman.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kramer in view of Saitoh and Sicilia as applied to claims 1, 6 and 9 above, and further in view of Thiel et al (U.S. Patent 5,591,030).

Kramer/Saitoh teaches the method of claims 1, 6 and 9, as discussed above.

Kramer/Saitoh does not specifically teach an insulating and a conductive ceramic composition, as required by claim 7.

Thiel et al '030, hereinafter "Thiel '030", teaches a metal ceramic containing metal reducing agents (electrically conductive) in a dental restoration structure, and an oxide-ceramic (insulating) material for another composition (Column 1, lines 13-15; Column 3, lines 9-15). One of ordinary skill in the art at the time of the invention would have found it obvious to include the metallic reducing agents taught by Thiel '030 in the prosthesis fabrication method of Kramer/Saitoh. The motivation to do so would have been to secure bonding to a metal substructure, such as a carrier part. See 9-30 in column 3 of Thiel '030.

Response to Arguments

Applicant's arguments with respect to the pending claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monica A. Huson whose telephone number is 571-272-1198. The examiner can normally be reached on Monday-Friday 7:00am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on 571-272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Monica A Huson
Primary Examiner
Art Unit 1791

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